

Name:

Date:

1. (a) $\boxed{216}$
 (b) $\boxed{1/625}$
 (c) $\boxed{1}$
 (d) $\boxed{-27/8}$
 (e) $\boxed{256/81}$
2. $\boxed{2^3 \times 3 \times 5^{-1} = 4.8}$
3. (a) $(-125)^{1/3} = (-5^3)^{1/3} = 5^{3/3} = \boxed{-5}$
 (b) $\boxed{23}$
4. (a) $\boxed{1}$
 (b) $\boxed{-27}$
5. $\frac{(8^2 \times 5^3)^{3/5}}{2^{3/5} \times 5^{-1/5}} = \frac{(2^3)^{2 \times (3/5)} \times 5^{3 \times (3/5)}}{2^{3/5} \times 5^{-1/5}} = \frac{2^{18/5} \times 5^{9/5}}{2^{3/5} \times 5^{-1/5}} = 2^{18/5 - 3/5} \times 5^{9/5 + 1/5} = 2^{15/5} \times 5^{10/5} = 2^3 \times 5^2 = \boxed{200}$
6. (a) $\frac{((2^{-1})^{-1})^{-1} \times 6^4}{2^9 \times 3^{10}} = \frac{2^{-1} \times 2^4 \times 3^4}{2^9 \times 3^{10}} = 2^{-1+4-9} \times 3^{4-10} = 2^{-6} \times 3^{-6} = \boxed{6^{-6}}$
 (b) $\boxed{2^{-4}}$
 (c) $\boxed{10011.01}$
7. (a) $\boxed{3 \times 2^{-4}}$
 (b) $\boxed{\frac{3}{5}}$
 (c) $5^{1/2} \times 5^{3/2} + (7^{1/2})^5 \div 7^{1/2} = 5^{4/2} + 7^{5/2-1/2} = 5^2 + 7^2 = 25 + 49 = \boxed{74}$
8. (a) $\boxed{3^7}$
 (b) $\frac{16}{81} \div 625 = \frac{2^4}{3^4} \times \frac{1}{5^4} = \boxed{\left(\frac{2}{15}\right)^4}$